REMARKS

Claims 16, 24, and 32 have been amended to more clearly specify that the recovered solution "of" the at least one blood clotting protein "comprises" the at least one blood clotting protein.

Claims 16-39, 41, 44, and 48-51 are active. Applicants believe that no new matter would be added by entry of these amendments.

Rejection of the Claims under 35 U.S.C.§ 103(a)

The Examiner has maintained the rejection of the claims over the combination of *Laustsen* (U.S. 5,437,774), *Gritzner* (U.S. 4,043,895) and *Margolis* (U.S. 5,650,055) "for reasons of record"[1], arguing that *Gritzner*, "shows the precipitation of the fibrinogen outside the [electrophoresis] cell" and thereby concluding that *Gritzner* "shows that before precipitation the fibrinogen would be dissolved within the solution and thus would meet the claimed invention."[2]

Applicants respectfully traverse the rejection. Applicants reiterate their position that the combination of *Laustsen*, *Gritzner*, and *Margolis* fails to support a *prima facie* case of obviousness because the combination "fails to teach or suggest all the claim limitations", and the claimed invention reasonably provides significant improvements over the precipitation process taught by the combination of *Laustsen*, *Gritzner*, and *Margolis*.

Claims 16, 24, and 32 each recite a step (e) of "*recovering a solution* comprising the at least one blood clotting protein" (emphasis added). Thus, the claimed methods require a discrete step in which a *solution* comprising at least one blood clotting protein is "recovered" -- *i.e.*, regained or reclaimed from the mixture.

Reasonably, "recovery" of a blood clotting protein by electrophoresis must occur outside of the electrophoresis cell. However, *Gritzner* states that "protein *precipitation* (generally fibrinogen) takes place *outside* the [electrophoresis] cell" (emphasis added).[3]

---

[1] Office action issued May 18, 2006, page 2, second paragraph
[2] *Ibid.*, page 2, fifth paragraph
[3] *Gritzner* at col. 9, line 5-9

Thus, *Gritzner* unambiguously teaches that fibrinogen is *recovered* in the form of a solid precipitate – not in the form of a solution as suggested by the Examiner.

The Examiner states that "before precipitation the fibrinogen would be dissolved within the solution". Applicants believe that the Examiner is arguing that a solution of fibrinogen is *inherently* present prior to precipitation of fibrinogen. However, the Examiner has failed to provide evidence showing that a solution of fibrinogen is necessarily[4] *recovered.* Specifically, the Examiner has failed to point out where *Gritzner* describes or suggests *recovery* of a solution of fibrinogen, rather than of the precipitated fibrinogen expressly described therein.

Gritzner itself suggests that fibrinogen is not necessarily present in the form of a solution prior to precipitation. *Gritzner* is directed to an "electrophoretic apparatus useful for continuous separation of *colloidal suspensions* and solutions" (emphasis added).[5] Thus, before precipitation the fibrinogen is not necessarily present in the form of a solution, as it could also be present in the form of a colloidal *suspension* – particularly in view of the known poor solubility of fibrinogen.[6]

As indicated by the Examiner, *Laustsen* "fails to disclose the use of the electrophoretic separation of the blood clotting proteins, such as fibrinogen"[7], and *Margolis* was cited for its description of reversing the polarity of the electric potential and likewise fails to describe separating blood clotting proteins such as fibrinogen. As discussed above, *Gritzner* fails to describe a method for the *recovery* of a *solution* of fibrinogen (i.e., as in step (e) of the claimed methods). Thus, the combination of *Laustsen, Gritzner* and *Margolis* fails to describe every limitation of the claimed method and therefore fails to support a *prima facie* case of obviousness. Accordingly, the combination of *Laustsen, Gritzner* and *Margolis* fails to suggest the claimed invention. Applicants respectfully request that the rejection be withdrawn.

---

[4] MPEP 2112 IV: "the fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherent sea of that result or characteristic". "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'"

[5] *E.g.*, col. 1, lines 45-48

[6] E.g., present specification at page 1, lines 18-22

[7] Office Action issued August 26, 2005 at page 5, first full paragraph

Furthermore, the Examiner has failed to point out where the applied references describe a multi-step method according to claim 24 which includes additional purification steps (f)-(i). Thus, the Examiner has failed to support a *prima facie* case of obviousness in regard to the method of claim 24.

Claim 39 is directed to a system which has means for applying at least one selected electric potential whereby the application of the electric potential "causes migration of at least one blood clotting proteins substantially *through* the first selective membrane" (emphasis added). Neither *Laustsen* nor *Margolis* describe the separation of a blood clotting proteins, and thus fail to describe an apparatus for separating a blood clotting protein. *Gritzner* describes an apparatus in which stream A designates the "starting solution", and components which migrate through the semipermeable membrane enter solution B.[8] *Gritzner* specifically states that precipitated fibrinogen is obtained "on the holding of the output A stream".[9] Thus, fibrinogen does not migrate *through* the semipermeable membrane in the apparatus of *Gritzner*, Accordingly, the apparatus of *Gritzner* is quite different from that of the claimed system. Thus, modifying the apparatus of *Laustsen* in the manner of *Gritzner* would not provide the claimed system. Accordingly, the combination of the applied references fails to suggest the claimed system.

Claim 51 is directed to isolated fibrinogen prepared by the claimed method (i.e. claim 48). As discussed in the present specification[10], the properties of fibrinogen are extremely dependent on the method of purification in recovery. In particular, traditional precipitation methods tend to alter the physical properties of the fibrinogen compared to "native" fibrinogen due to denaturation of the fibrinogen, coprecipitation of contaminating proteins, etc.. Applicants have shown[11] that fibrinogen prepared by the claimed electrophoresis method has superior properties compared to conventionally prepared fibrinogen, which more closely resembles the properties of "native" fibrinogen. Thus, one would reasonably expect that fibrinogen prepared by the claimed method would differ significantly from precipitated fibrinogen, *e.g.* prepared by the method of *Gritzner*, and "native" fibrinogen. Accordingly

---

8 *Gritzner*, col. 2, lines 48-61
9 *ibid.*, col. 9, line 7
10 e.g., page 1, line 27 to page 2, line 14; page 14, lines 1-7; page 16, lines 8-14
11 E.g., Tables 3 & 4; Figure 5

Applicants respectfully submit that the combination of references fails to suggest the isolated fibrinogen of claim 51.

Accordingly, and for the reasons stated above, Applicants respectfully request that the rejection be withdrawn, and submit that the present application is now in condition for allowance. Early notification thereof is earnestly solicited.

Except for issue fees payable under 37 C.F.R. 1.18, the Commissioner is hereby authorized by this paper to charge any additional fees during the entire pendency of this application including fees due under 37 C.F.R. 1.16 and 1.17 which may be required, including any required extension of time fees, or to credit any overpayment to Deposit Account No. 50-0310. This paragraph is intended to be a **constructive petition for extension of time** in accordance with 37 C.F.R. 1.136(a)(3).

Respectfully submitted,

Dated: September 18, 2006

Cooley Godward LLP

Customer No. 58249
Cooley Godward LLP
875 15th Street, N.W., Ste. 800
Washington, D.C. 20005-2221
202-842-7800

Thomas A. Blinka
Registration No. 44,451